UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte MONTY KRIEGER

Appeal No. 2004-1823
Application No. 09/148,012

HEARD: December 9, 2004

Before WILLIAM F. SMITH, SCHEINER, and GRIMES, Administrative Patent Judges.

WILLIAM F. SMITH, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the final rejection of claims 1-10, 12, 15, 16, and 20-22. Claim 19 is pending but has been withdrawn from consideration by the examiner.

Claims 1 and 8 are representative of the subject matter on appeal and read as follows:

1. A method for altering fertility or treating a reproductive disorder in a female mammal in need of treatment thereof comprising

administering a compound altering lipoprotein, LDL, HDL or cholesterol levels in the mammal in an amount effective to enhance or restore fertility or treat a reproductive disorder in the mammal.

8. The method of claim 1 wherein the mammal is a female and the compound is administered in an amount effective to prevent normal reproductive function.

The examiner does not rely upon prior art in any of the pending rejections. Claims 1-10, 12, 15, 16, and 20-22 stand rejected under 35 U.S.C. § 112, first paragraph (written description). Claims 1-10, 15, 16, and 20-22 stand rejected under 35 U.S.C. § 112, first paragraph (enablement). Claims 1-10, 12, 15, 16, and 20-22 stand rejected under 35 U.S.C. § 112, second paragraph. We vacate the examiner's written description and enablement rejections and reverse the indefiniteness rejection. In addition, we make a new ground of rejection under the provisions of 37 CFR §41.50(b).

Background

SR-BI receptor is expressed principally in steroidogenic tissues and liver. Specification, page 6. The SR-BI is stated to mediate HDL-transfer and uptake of cholesterol. Id. Appellant states that "SR-BI might play a major role in transfer of cholesterol from peripheral tissues, via HDL, into the liver and steroidogenic tissues, and that increased or decreased expression in the liver or other tissues may be useful in regulating uptake of cholesterol by cells expressing SR-BI . . . ." Id. The present invention is summarized as follows:

> SR-BI is present at relatively high levels on the membranes of hepatocytes and steroidogenic tissues, including the adrenal gland, testes, and ovaries, where it mediates the uptake and transport of cholesteryl ester from high density lipoproteins. It has been demonstrated that transgenic animals which do not produce SR-BI are healthy, with the exception that the females are infertile. This provides evidence that inhibition of uptake, binding or transport of cholesteryl ester to SR-BI can be used to inhibit pregnancy. The same pathway can also be used to decrease production of steroids, and therefore be used as a therapy for

> disorders involving steroidal overproduction and disorders treated with drugs that decrease steroids, such as endometriosis, and breast and prostate cancer.

Id., page 7, second paragraph.

Appellant also states that "SR-BI has now been confirmed as the principal mediator of cholesteryl ester transport from peripheral tissues to the liver and other steroidogenic tissues, including the adrenal gland, testes and ovaries." id., page 10, and "[i]nhibition of SR-BI can . . . be used to limit steroid production in steroidogenic tissues, and serve either as a means of contraception or a means of treating disorders associated with overproduction of steroids." Id., page 11.

Of particular interest in this appeal are the data set forth in Example 6 which show that deletion of SR-BI can be effective as a contraceptive. Example 6 describes the generation of mice containing a targeted null mutation in the gene encoding SR-BI. Specification, page 45. The mutants generated in Example 6 are stated to have "looked normal (weight, general appearance and behavior) and the males were fertile. No offspring from female homozygous mutants have been obtained following multiple attempts to do so, indicating a substantial, and possibly complete, decrease in fertility in these females." Id., page 49. Example 7 refers to several studies conducted to determine why the female homozygous knockout mice were infertile.

A reading of the entire specification indicates that SR-BI plays a role in transporting cholesterol to steroidogenic tissues and the liver. One effect from inhibiting SR-BI activity is to lower fertility in females. Thus, inhibition of SR-BI in females is stated to be useful as a contraceptive and indeed in Example 6 homozygous female mice having no SR-BI activity were found to be infertile. Notably missing from the

specification, however, is any statement that altering SR-BI levels may "enhance or restore fertility or treat a reproductive disorder" in a female mammal. Nor is there any statement in regard to enhancing or restoring fertility or treating a reproductive disorder in a female mammal by broadly administering a compound altering lipoprotein, LDL, HDL or cholesterol levels as required by claim 1 on appeal.

Discussion

We have considered the examiner's written description and enablement rejections but find that they are subsumed by a bigger issue involving written description. Consequently, we make the following new ground of rejection under the provisions of 37 CFR § 41.50(b) and will subsequently discuss the examiner's rejections.

1. New Ground of Rejection Under 37 CFR § 41.50(b).

Claims 1-10, 12, 15, 16, and 20-22 are rejected under 35 U.S.C. § 112, first paragraph (written description).

In order to put the written description issue we have discovered in perspective we will trace the evolution of claim 1 from how it read when the case was originally filed to its present amended form.

Original claim 1 read as follows:

A method for modifying steroid production in a mammal comprising administering a compound altering the transfer of cholesterol or cholesteryl ester from high density lipoprotein or other lipoproteins via SR-BI to liver or steroidogenic tissues.

As seen, original claim 1 comported with the written description of this application in regard to modifying steroid production in a mammal by administering a compound altering the transfer of cholesterol or cholesteryl ester from high density

lipoprotein or other lipoproteins via SR-BI to liver and steroidogenic tissues. Claim 1 was amended in a paper received June 26, 2000, to read as follows:

A method for modifying steroid production in a mammal in need of treatment by alteration of reproductive hormone levels comprising administering a compound altering the transfer of cholesterol or cholesteryl ester from high density lipoprotein or other lipoproteins [via] by specifically altering expression of or binding to cholesterol or cholesteryl ester of SR-BI to [liver or] steroidogenic tissues producing reproductive hormones.

Claim 1 was subsequently amended in a paper received January 5, 2001, to read as follows:

A method for modifying steroid production in a mammal in need of treatment by alteration of reproductive hormone levels comprising administering a compound directly inhibiting SR-BI or a compound selectively increasing expression of SR-BI thereby [compound] altering the transfer of cholesterol or cholesteryl ester from high density lipoprotein or other lipoproteins by specifically altering expression of or binding to cholesterol or cholesteryl ester of SR-BI to steroidogenic tissues producing reproductive hormones.

Thereafter claim 1 was amended in a paper received July 17, 2001, to read as follows:

A method for modifying steroid production in a mammal in need of treatment by alteration of reproductive hormone levels comprising administering a compound directly inhibiting SR-BI function or expression or a compound selectively increasing expression of SR-BI thereby directly resulting in the selective alteration of cholesterol or cholesteryl ester from high density lipoprotein or other lipoproteins by specifically altering expression of or binding to cholesterol or cholesteryl ester of SR-BI to steroidogenic tissues producing reproductive hormones, wherein the compound is selected from the group consisting of SR-BI cDNA, SR-BI anti-sense nucleic acids, SR-BI antibodies, and SR-BI receptor binding small molecules or proteins.

Up to this point in time, claim 1 was directed to methods for modifying steroid production by administering compounds that affected SR-BI function. However, claim 1 was amended in a paper received February 21, 2002, to read as follows:

A method for altering fertility or treating a reproductive disorder in a mammal comprising

administering a compound altering lipoprotein, LDL, HDL or cholesterol levels in the mammal.

Thus, in the blink of an eye, claim 1 became a new claim directed to a method for altering fertility or treating a reproductive disorder in a mammal which broadly comprises administering a compound altering lipoprotein, LDL, HDL or cholesterol levels in the mammal that does not require affecting SR-BI function, instead of directed to methods for modifying steroid production by altering expression of or binding to cholesterol or cholesteryl ester of SR-BI.

Claim 1 was subsequently amended three more times on August 13, 2002, November 20, 2002, and May 6, 2003, as follows:

A method for altering fertility or treating a reproductive disorder in a female mammal in need of treatment thereof comprising

administering a compound altering lipoprotein, LDL, HDL or cholesterol levels in the mammal in an amount effective to alter fertility or treat a reproductive disorder in the mammal. [August 13, 2002]

A method for altering fertility or treating a reproductive disorder in a female mammal in need of treatment thereof comprising

administering a compound altering lipoprotein, LDL, HDL or cholesterol levels in the mammal in an amount effective to alter fertility or treat a reproductive disorder in the mammal. [November 20, 2002]

A method for altering fertility or treating a reproductive disorder in a female mammal in need of treatment thereof comprising

administering a compound altering lipoprotein, LDL, HDL or cholesterol levels in the mammal in an amount effective to ~~alter~~ enhance or restore fertility or treat a reproductive disorder in the mammal.
[May 6, 2003]

The claimed invention has morphed over the years from a method of modifying steroid production in a mammal by administering a compound affecting SR-BI transfer

of cholesterol or cholesteryl ester to a method to enhance or restore fertility or treat a reproductive disorder in a female mammal by administering a compound that alters lipoprotein, LDL, HDL or cholesterol levels without regard to SR-BI. The original disclosure of this application only describes a single mode of affecting fertility in a female mammal, i.e., SR-BI knockout female mice are infertile. There is no disclosure that fertility may be enhanced or restored as now claimed by simply altering lipoprotein, LDL, HDL or cholesterol levels in the female mammal.

Further evidence that claim 1 is directed to an entirely new concept not described in the original disclosure is seen by the continued presence of claim 8 in the case which requires the compound be administered in an amount effective to prevent normal reproductive function. This claim is entirely at odds with claim 1 as now amended where the compound is to be administered inter alia to enhance or restore fertility.

In addition, we find no written description of a method to treat a reproductive disorder in a female mammal by merely administering a compound altering lipoprotein, LDL, HDL or cholesterol levels. This concept is not found in the original disclosure of this application.

Our finding of lack of written description extends to all of the claims pending in this appeal. Claims such as claims 2 and 3 which limit the compound used in the claimed methods to one that alters SR-BI expression or binding of SR-BI to high density lipoprotein are not described in the original disclosure. Again, the only disclosed mode of action of SR-BI that affects fertility in a female mammal is that SR-BI knockout female mice are infertile. There is no disclosure in the original application that the

observed infertility can be ameliorated or corrected in any manner by any compound effective to alter lipoprotein, LDL, HDL or cholesterol levels in any mode, including altering SR-BI expression or binding of SR-BI to high density lipoprotein.

In considering this issue we note:

> [t]he question is not whether a claimed invention is an obvious variant of that which is disclosed in the specification. Rather, a prior application itself must describe an invention, and do so in sufficient detail that one skilled in the art can clearly conclude that the inventor invented the claimed invention as of the filing date sought...It is not sufficient for purposes of the written description requirement of Section 112 that the disclosure, when combined with knowledge in the art, would lead one to speculate as to modifications that the inventor might have envisioned, but failed to disclose.

Lockwood v. American Airlines Inc., 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (Fed. Cir. 1997). At best, one may intuit or think it obvious that having generated infertile SR-BI knock out female mice, the effect may be reversible if SR-BI function is restored. However, that is not the test. Even it that was the test, claim 1 on appeal is not directed to methods involving affecting SR-BI function. It is much broader in scope.

In response to the examiner's rejections, appellant relies upon Miettinen.[1] Present appellant Monty Krieger is listed as a co-author in Miettinen. We have considered Miettinen and find that it is not relevant since it was published in 2001, after the September 4, 1998, filing date of this application. Furthermore, even if Miettinen is to be considered in determining the patentability of the claims, if anything, it supports our new ground of rejection since Miettinen states:

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[1] Miettinen et al. (Miettinen), "Abnormal lipoprotein metabolism and reversible female infertility in HDL receptor (SR-BI)-deficient mice," The Journal of Clinical Investigation, Vol. 108, No. 12, pp. 1717-1722 (2001)

> It is estimated that for 10-20% of women with infertility problems, the underlying causes are unknown. We are not aware of any reports exploring the potential etiology of abnormal lipoprotein structure or metabolism in these patients, although a few studies have examined the potential role of lipoproteins in female infertility associated with endocrine disturbances such as polycystic ovarian syndrome.

Page 1721 (reference citations omitted). As of 2001, appellant is admitting that for the 10-20% of women having infertility problems of unknown cause, it was not known that altering their lipid level broadly as set forth in claim 1 on appeal would enhance or restore their fertility. If anything, Miettinen establishes that appellant was not in possession of the concepts now claimed as of the filing date of this application.

2. Examiner's Written Description and Enablement Rejections.

In reviewing the examiner's reasoning in support of these rejections as it appears in the Examiner's Answer, we find the examiner was concerned about the compounds encompassed by the claims on appeal as well as appropriate dosages to be used in the claimed methods. See, e.g., Examiner's Answer, page 3. While the examiner makes valid points in making these rejections, we believe the examiner overlooked the overriding issue in this case outlined above in the new ground of rejection. We are not prepared to say that the examiner's rejections are incorrect, just that the issues raised by the examiner are premature until appellant can establish that the claims as drafted enjoy written descriptive support in the original disclosure of this application.

Under these circumstances, it is appropriate that we vacate the examiner's enablement and written description rejections. If prosecution is to be continued in this application, we believe appellant will need to amend the claims so that they are limited to subject matter that was clearly described in the original disclosure of this application.

At that point in time, the examiner will be in a better position to assess the written description and enablement issues raised in the extant rejections.[2]

3. Rejection Under 35 U.S.C. § 112, Second Paragraph.

The only reason given by the examiner in support of this rejection is that the claims are "incomplete for omitting essential steps, such omission amounting to a gap between the steps. . . . The omitted steps are: the recitation of a treatment regimen including a dose of the claimed compound to be administered and the length of time to administer the compound." Examiner' Answer, page 8. We reverse this rejection.

Claim 1 does recite a treatment regimen as well as a dose and length of time that the compound is to be administered in that claim 1 requires administering the specified compound in an amount effective to enhance or restore fertility or to treat a reproductive disorder. The dosage and the time period in which the compound is administered are those which are "effective" as required by claim 1 on appeal. What the examiner does not appreciate is that claim 1 is functional in nature. Normally that means that claim 1 is broad in scope, not indefinite under 35 U.S.C. § 112, second paragraph.

The examiner has not identified in what manner a person of skill in the art would have difficulty in ascertaining the metes and bounds of claim 1 on appeal. Under these circumstances, we reverse the rejection under 35 U.S.C. § 112, second paragraph.

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[2] Issues concerning written descriptive support for amended claims would be minimized if appellant would comply with the requirements of 37 CFR § 1.75(d)(1) when presenting the amended claims.

Time Period For Response

This decision contains a new ground of rejection pursuant to 37 CFR § 41.50(b) (effective September 13, 2004, 69 Fed. Reg. 49960 (August 12, 2004), 1286 Off. Gaz. Pat. Office 21 (September 7, 2004)). 37 CFR § 41.50(b) provides "[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review."

37 CFR § 41.50(b) also provides that the appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

> (1) *Reopen prosecution*. Submit an appropriate amendment of the claims so rejected or new evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the proceeding will be remanded to the examiner. . . .
>
> (2) *Request rehearing*. Request that the proceeding be reheard under § 41.52 by the Board upon the same record. . . .

VACATED-IN-PART; REVERSED-IN-PART; 37 CFR § 41.50(b)

William F. Smith
Administrative Patent Judge

Toni R. Scheiner
Administrative Patent Judge

Eric Grimes
Administrative Patent Judge

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